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PPAR agonists identified in extracts of elderflowers (*Sambucus nigra*) by bioassay-guided fractionation

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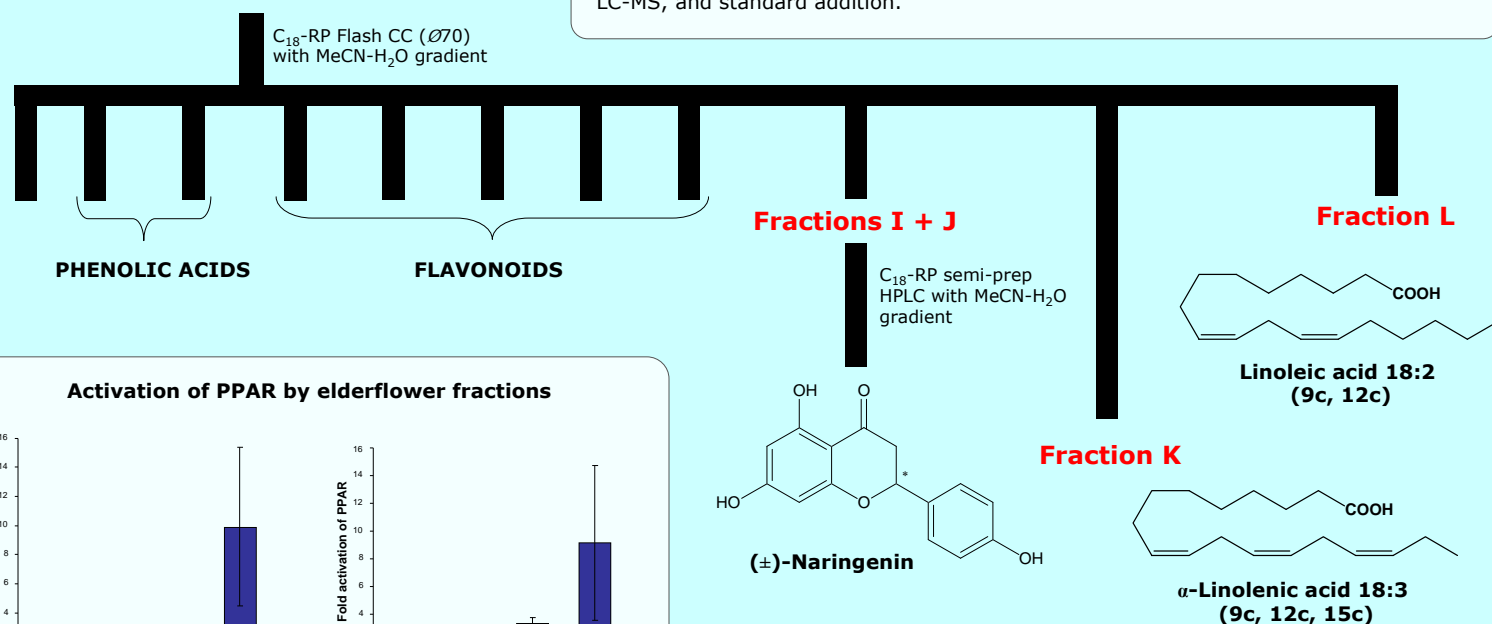
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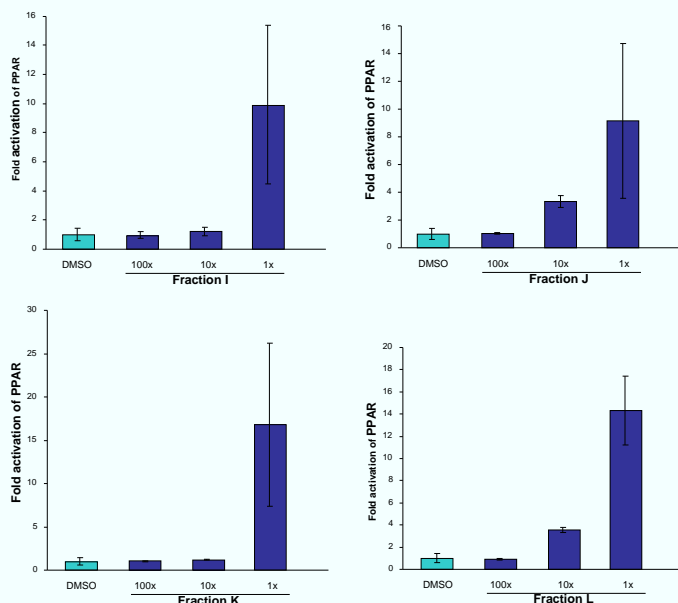
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Methanolic extract of elderflowers



Activation of PPAR by elderflower fractions



Bioactivity and perspectives

Bioassay-guided chromatographic fractionation of the elderflower extract yielded four bioactive fractions (marked with pink) and the major metabolites in these were naringenin, α -linolenic acid, and linoleic acid. Bioactivity was assessed using a PPAR γ transactivation assay and results obtained are shown to the left for the four fractions I, J, K, and L. Rosiglitazone (1 μ M) was used as positive control and the results are given as fold activation when DMSO is set to 1. Fatty acids are well-known activators of PPAR γ , but naringenin is not and will have to be further tested to establish its potential as an anti-diabetic compound.

Large differences in the content of the active compounds and other metabolites was found among elderflower varieties. This indicates the importance of choosing the optimal elder variety in order to develop effective functional foods/herbal products for prevention/treatment of type 2 diabetes.

References: [1] Gray, A. M. *et al.* (2000) The traditional plant treatment, *Sambucus nigra* (elder), exhibits insulin-like and insulin-releasing actions *in vitro*, *J. Nutr.* **130**, 15-20.

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